

UNITED STATES BUREAU OF EDUCATION
BULLETIN 1913, NO. 49 - - - - - WHOLE NUMBER 560

THE FARRAGUT SCHOOL

A TENNESSEE COUNTRY-LIFE
HIGH SCHOOL

By

A. C. MONAHAN
BUREAU OF EDUCATION

and

ADAMS PHILLIPS
PRINCIPAL, FARRAGUT SCHOOL



WASHINGTON
GOVERNMENT PRINTING OFFICE
1913

CONTENTS.

	Page.
Letter of transmittal.....	5
Introduction.....	7
The school history.....	7
The buildings and equipment.....	9
The school grounds.....	11
Instructional work of the school.....	13
Community service.....	18
The results of the school.....	21
Appendix—Industrial equipment of the Farragut High School.....	22

ILLUSTRATIONS.

Plate 1. Farragut School—approach from Kingston Pike.....	Frontispiece.
2A. The principal's home.....	8
2B. Girls' basket ball grounds.....	8
3A. Cooking class.....	12
3B. Home economics room.....	12
4A. Laboratory for sciences and agriculture.....	12
4B. Manual training class.....	12
5A. Water power which drives the double acting ram.....	16
5B. The Farragut watering place.....	16
6A. Group of farmers at the meeting to discuss canning factories and corn growing.....	16
6B. Scene from the play "The Dust of the Earth," given at Com- mencement, May, 1912.....	16

LETTER OF TRANSMITTAL

DEPARTMENT OF THE INTERIOR.

BUREAU OF EDUCATION,

Washington, October 20, 1913.

SIR: I know of no more successful attempt to adapt the organization, work, and ideas of a country school to the needs of country life than that made by the Farragut School, located in the open country near the village of Concord, Knox County, Tenn. Through 10 years of varied success this school has demonstrated the fact that the work of the rural school may be adjusted to meet the practical needs and requirements of country life without losing any of its value for discipline and culture.

The community served by this school is not rich. It is just an ordinary American farming community. What it has done other farming communities may do without greater effort and expense than any American community should be willing to make for the education of its children. The people of this community have learned already that the larger expenditure necessary for the school of better type is its best investment.

The manuscript submitted herewith, prepared by A. C. Monahan, one of the bureau's specialists in rural education, assisted by Adams Phillips, principal of the school, gives a brief account of the origin, growth, and work of this school and its relation to the life of the community. I recommend that it be published as a bulletin of the Bureau of Education as an illustration of a new type of school which should and will, I believe, become much more common than it now is.

Some sentimental interest may attach to this school because of the fact that it is located near the birthplace of Admiral David Glasgow Farragut, whose name it bears.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

To the SECRETARY OF THE INTERIOR.

THE FARRAGUT HIGH SCHOOL.

INTRODUCTION.

The Farragut High School is located in Knox County, Tenn., about 15 miles west of Knoxville and 14 miles north of Concord, a village of 300 population on the Southern Railway. The school building stands in the open country at the junction of the Concord Pike with the Kingston Pike, which runs westward from Knoxville through a succession of open valleys well adapted to farming. The region is typical of the better farming sections of eastern Tennessee.

In the same building with the high school is an elementary school of 150 children from the tenth school district of Knox County. The section tributary to this elementary school contains 12 or 15 square miles and formerly had three elementary schools of one or two rooms each. The high school had last year (1912-13) 90 students, nearly all of whom were from the western half of Knox County, and the large majority were from the tenth district. The high school is one of the system of county high schools and is supported out of the county high-school funds, which in this, as in other counties of Tennessee, are separate from the fund for elementary schools. Tuition is free to all pupils who are residents of Knox County; others pay a fee of \$3 per month. The school has no dormitories and makes no provision for boarding pupils. The pupils either return to their own homes each night or they find board and room in the neighboring farmhouses. Last year there were only 10 boarding pupils.

THE SCHOOL HISTORY.

In 1902 a number of heads of families in the tenth district of Knox County met for the purpose of devising some means by which their children might have the advantages of a good home school offering opportunities for a better kind of education for their children. They enlisted the cooperation of the district school directors. Mass meetings were held in which the need for a better school and the means of obtaining it were discussed. The school was planned to include a high school adapted to the needs of the community. Charles W. Dabney, then president of the University of Tennessee, now president of the University of Cincinnati; P. P. Claxton, then professor

of education at the University of Tennessee, now United States Commissioner of Education; J. D. Eggleston, now president of the Virginia Polytechnic Institute, but at that time located at Knoxville as editor of the bureau of publicity and information of the Southern Education Board; Wallace Buttrick, executive secretary of the General Education Board, New York City, and others, took an interest in the movement, addressed the public meetings, and advised with the people and their committees. At the suggestion and invitation of one of the farmers, a careful survey of the community was made by Mr. Eggleston. As a result of his personal canvass and of mass meetings, public sentiment was aroused in favor of the undertaking, and a local subscription of \$5,000 was secured in work, material, and cash. This was followed by a donation of an equal amount in money from the General Education Board.

A school farm of 12 acres was purchased, and upon it was built a comfortable wooden house with six classrooms and an assembly hall, heated by furnaces, and well ventilated. The location selected, at the junction of the Concord and Kingston pikes, was the site of an old fort of the Civil War period. The site overlooks the valley for a distance of from 1 to 3 miles in every direction, and the location is easily accessible from all the territory served by the school. The school was opened to pupils in February, 1904.

The department of education of the University of Tennessee was particularly interested in the school, because it was hoped to make of it a model for southern rural communities and also that it might be an object lesson for the students of the summer school of the South, held at the university, and for the regular students of education in the university.

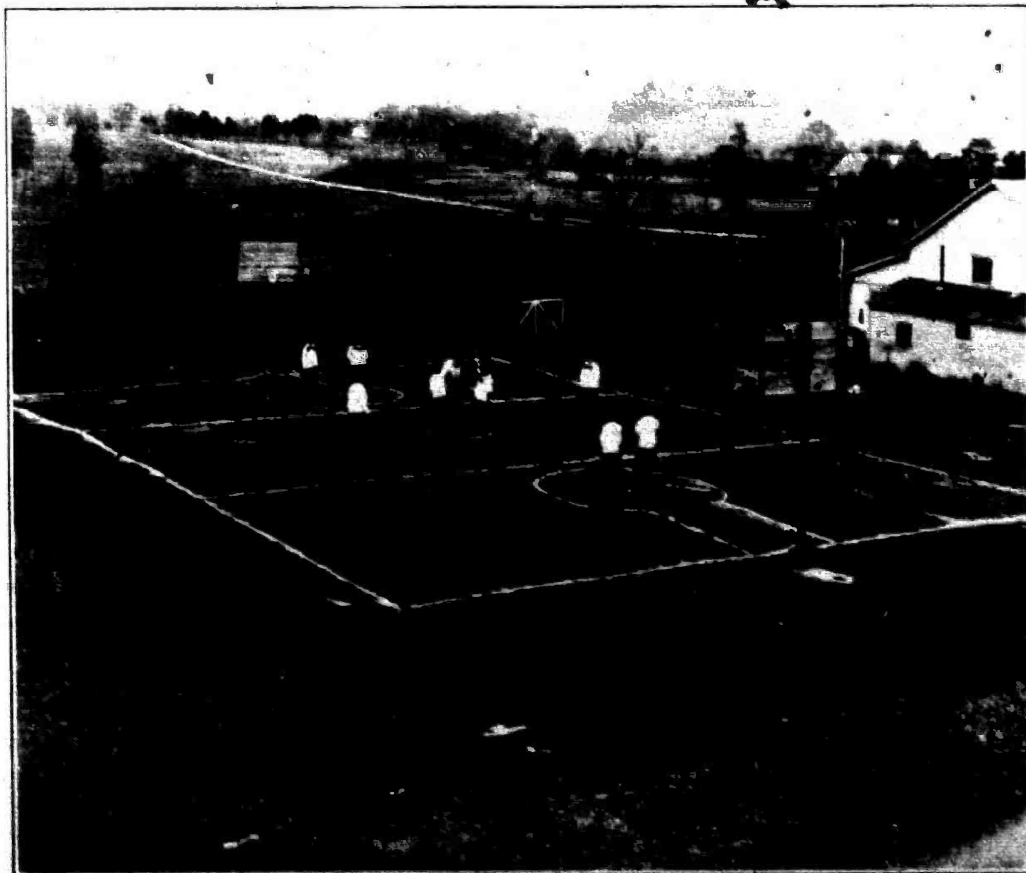
The course of study was the traditional elementary and high-school course, modified by the purely agricultural surroundings to as large a degree as sentiment, training of teachers, and equipment would permit. It emphasized practical agriculture, horticulture, domestic science, and manual training. But the modifications were not so great that students completing the four years of the high school could not enter the State university and other colleges and universities of the State and section.

For the first four or five years of its existence the school was supported and managed by an incorporated board of trustees, in cooperation with the school board of the tenth district of Knox County. From the beginning it was open free to all white children of school age—6 to 21 years—in the district, and to those over 21 at a nominal fee.

For two years the work of the school had proceeded satisfactorily; several hundred volumes had been placed in the library, which was used by both the school and the community; the grounds had been put



A. THE PRINCIPAL'S HOME.



B. GIRLS' BASKET BALL GROUNDS.

in good condition; the necessary furniture, equipment for teaching elementary sciences, a piano, pictures for the walls, and other useful accessories had been provided; courses of lectures and entertainments had been given; most of the original opposition to the school had been overcome, and it had worked its way into the hearts of the people, when on the night of March 15, 1906, the building and its contents were destroyed by fire.

On the morning after the fire the patrons of the school and other residents of the district held a mass meeting upon the grounds and unanimously agreed that the school must go on. Temporary quarters were arranged in an abandoned church in the neighborhood, and there the year's work was completed. A subscription was started immediately and a substantial sum was soon raised; \$3,500 was received as insurance on the old building and \$4,500 more was borrowed. All of it was paid for the erection of the new building.

The original plan was to place the school, after thorough organization, under the management of the district board of school directors and to incorporate the work which it was to do in the general scheme of public education as provided for the district by county and State. It was found that this could not be done, because certain subjects included in the course of study were not included in the list of subjects which the law permitted to be taught in the district public schools. However, when the county court provided funds for the establishment and maintenance of high schools in Knox County, the Farragut school board offered to turn all its property over to the county, free of incumbrance, on condition that the county high-school board would maintain there a high school with agriculture, home economics, and manual training as important parts of the course of study. The county high-school board accepted the proposition and appropriated \$2,000 for the purpose of paying teachers for the scholastic year 1906-7. The burning of the building, as already described, before deeds had been signed, postponed the transfer of the property and the consummation of the plan until the Farragut board and the community had replaced the buildings, which they did within a year.

THE BUILDINGS AND EQUIPMENT.

The present building is a two-story brick building with basement, and cost, with the original equipment, \$12,000. Additional equipment and a water system installed since have brought the total cost of the school to about \$17,000. The high school occupies the second floor, one large room on the first floor, and part of the basement. Three other rooms on the first floor are occupied by the elementary school. The room for household economics, the girls' lunch and toilet rooms occupy one-half of the basement. The manual-training room,

the boys' lunch and toilet rooms occupy the other half. On the second floor nearly one-half of the space is occupied by a study hall, in which all high-school pupils are assigned desks. There is space for additional seats whenever it is desirable to use the room as an auditorium or assembly hall. When properly arranged as an assembly hall, it will seat 300 persons. The remainder of the second floor is divided into a hallway and three rooms—two recitation rooms and a library.

The laboratory on the first floor is a large room, and is used for physics, chemistry, botany, and agriculture. The equipment for each of these subjects is not extensive, but is apparently sufficient for present needs. The home-economics room in the basement is equipped with a coal range, three tables on which the girls prepare material for cooking, a cabinet for utensils and provisions, a dining-room table, a fireless cooker, and a sewing machine. The room is used for the classes in sewing as well as in cooking. The manual-training room contains 11 carpenter benches, with the ordinary carpenter tools.¹

Each toilet room is equipped with six Douglas siphon jet closets, two washbowls, two plate-glass mirrors, and two shower baths with dressing rooms. All sinks and washbowls are furnished with liquid-soap dispensers and paper towels. The partitions between the closets are galvanized iron painted with white enamel. The girls' shower baths are inclosed with white enameled iron; the boys' shower baths with white enameled wood. The walls of the basement are all painted white. The floor is of concrete.

The water system was installed in 1911, making sanitary closets and shower baths possible. Water is obtained from a large spring 1,200 feet away from and below the building. The cost of the water system was a little less than \$3,000. Mr. Phillips, in describing the water supply, says:

It is pumped to the building and into two 1,000-gallon tanks in the attic by a No. 40 double-acting Rife ram, with a capacity of 3,000 gallons per day. The ram is driven by creek water, but delivers only spring water to the buildings. From the tanks water is conveyed to all parts of the school building, to the principal's house, the barn, and to a drinking fountain on the pike. In the hall on the second floor are two sanitary drinking fountains for the high school. On the lower floor there are two more for the elementary school. There is a drinking fountain in each lunch room. There are two sinks and one washbowl in the domestic economy room, one washbowl in the manual-training room, and three sinks in the science laboratory. All sinks, bowls, and showers are supplied with hot water, the former from a 300-gallon hot-water tank connected with a coil in the furnace and also with a special tank heater, with a capacity of 250 gallons per hour, to be used when there is no fire in the furnace.

¹ A list of the equipment for both home economics and manual training is given in the appendix.

The waste water from the showers, bowls, sinks, and fountains is carried by sewer tile direct to the creek. The sewer pipe from the closets empties into a four-compartment septic tank 15 feet long, 9 feet wide, and 7 feet deep. The tank overflows clear and odorless into the tile leading to the creek.

On the school grounds is located a cottage for the principal, the use of which is given to him rent free. The building is plain and simple, but well arranged and adequate for the purpose for which it was built. It is equipped with a complete bathroom, private toilet for servant, and a "cool room," with concrete sink, through which water is kept running in warm weather. This serves as a refrigerator. The cost of this cottage was very small, as the main part of the cottage consists of one of the abandoned schoolhouses of the district moved here and remodeled.

At the junction of the Kingston Pike and the Concord Pike, at the corner of the school grounds, a concrete water box for horses and a public drinking fountain with concrete bowl and base for people have been erected. The fountain has proved to be of great convenience, not only to the community but also to travelers on the pike. The money for the water box and fountain was subscribed by the pupils, teachers, and patrons of the school. Every pupil subscribed, and has therefore a feeling of ownership. On the water box, in brass letters, are these words: ERECTED BY THE FARRAGUT SCHOOL AND COMMUNITY, 1910. On the fountain are the words: FARRAGUT DRINKING FOUNTAIN.

In addition to the school buildings and principal's home, located on the school grounds, there is a barn and a chicken house. The school owns a brood mare and four Percheron colts; it also owns a flock of pure-bred Plymouth Rock chickens. The mare, colts, and the chickens are the only animals owned by the school for teaching the principles of breeding. The chicken house is fitted with good, substantial equipment, including trap nests, so that it is possible to keep a careful record of the number of eggs laid by each hen. The principles of selection and breeding, which may be demonstrated so easily with poultry, apply with equal force to all kinds of animals.

THE SCHOOL GROUNDS.

In addition to the 12 acres which the school owns, it has recently leased for a period of five years 8 acres adjoining its property.

The lot owned by the school is divided into two parts; 6 acres about the buildings are in permanent grass for playgrounds; the other 6 acres are used for demonstration purposes. The school employs one man by the year to serve both as janitor and farm laborer. The grass plat immediately surrounding the buildings has been beautified by the addition of shrubbery and flower beds. Part of it is laid out for a baseball field, for tennis courts, and for an outdoor basketball

court. These playgrounds are used by the community at any time, and their use constitutes one of the principal contributions of the school to the community.

The chief aim in the demonstration work has been to show the farmer and the pupils in the agricultural courses how to bring the soil from a state of low fertility to a state of high fertility in the shortest possible time. The plats are used for demonstration and not for experimental purposes. One demonstration of particular interest is conducted on a half acre of land divided into 40 plats. The half acre is divided first into four ranges. Each range is divided lengthwise into two parts. One half of each has had an application of 2 tons of ground limestone per acre. On these ranges are conducted a rotation and a fertilizer demonstration, planned to show side by side the four phases of a 4-year rotation. The following is Mr. Phillips's description:

In the summer of 1913 range A has rye plowed under for cowpeas. Range B is in wheat, seeded with clover and timothy. Range C is in clover and timothy. Range D is in corn. The cowpeas of range A will be turned under for wheat in the fall. Thus the crops follow one another in regular succession, each range bearing the same crop once in four years. The ranges are divided crosswise into 10 parts of $\frac{1}{4}$ of an acre each. Plats 5 and 6 receive no fertilizer and serve as checks. Each of the other 8 plats has a different application of fertilizer. From this demonstration the students and people of the community are learning two very important lessons: First, that the soil is very poor in nitrogen, and that the quickest and most economical way to increase the nitrogen supply to the soil is to grow and turn under large crops of leguminous plants, such as vetch, cowpeas, and soy beans, which gather and convert into plant food the free nitrogen of the air. The second lesson is the value of an application of ground limestone. The difference between the limed and unlimed sections of the ranges is very apparent at any time during the growing season and is also apparent at the time of harvest. Many farmers in the community have profited by the lessons; some have not. The great value of rotation demonstration is that the demonstration keeps going on and on. It tells its story each year. The story is more impressive each succeeding year. The lesson becomes plainer and more valuable as the time goes by.

Another part of the 6 acres is used as a model garden. It is known in the community as the "principal's garden." The rest of the land is used for general crops, particularly to furnish fodder for the horse, colts, and poultry. The model garden and the use made of the rented land are described by the principal as follows:

The most important field on the farm is the home garden. The principal's garden consists of 1 acre of land inclosed by a woven-wire fence. It is planned as a model for the busy farmer who must do as much of his work as possible with a horse. Everything is in rows far enough apart for the one-horse cultivator. All of the common vegetables and small fruits are planned for. Here intensive tillage, crop rotation, the use of fertilizers and stable manure, and the plowing under of leguminous cover crops are all practiced to a great extent.



A. COOKING CLASS.



B. HOME ECONOMICS ROOM.



A. LABORATORY FOR SCIENCES AND AGRICULTURE.



B. MANUAL TRAINING CLASS.

Four acres of the rented land have been divided into 1-acre plats, upon which is to be carried on a four-year crop-rotation demonstration. The idea in this is that not only shall the plats be large enough to be cultivated with two horse implements, like the fields of a farm, but that there shall be measured equal tracts which may be used as a basis to compare the results at the school with the results obtained by the boys in the agricultural course who are members of the boys' corn club and with those of farmers in the community who are carrying on cooperative demonstrations. The other 4 acres of rented land will be devoted to pasture demonstrations. One-half of the field will be seeded for permanent pasture. The other half will be used to show how, by proper selection of cereals, clovers, and grasses, good pasture may be obtained for nearly all seasons of the year.

INSTRUCTIONAL WORK OF THE SCHOOL.

The fundamental purpose of the Farragut School is to give country boys and girls the best possible preparation for the duties and opportunities of rural life and citizenship. There are three four-year courses of study offered—a Latin course, an English and science course, and an agricultural course. This last course includes manual training, and the girls may substitute domestic economy for part of the agriculture. The courses are elective. Ninety per cent of the students are in the agricultural course. This course, as printed in the school catalogue, is given below. The other courses do not differ materially from this, except that the agriculture, domestic science, and manual training are omitted and the regular academic subjects given instead. The English and science course contains a course in general agriculture the second year. The Latin course includes four years of Latin and two of German.

MANUAL TRAINING, AGRICULTURE, AND HOME ECONOMICS COURSE.

(Periods per week.)

FIRST YEAR.

First term.		Second term.	
1 Mathematics—High school arithmetic.....	5	1 Mathematics—High school algebra.....	5
2 English—(a) Grammar.....	4	2 English—(a) Grammar.....	2
(b) Composition.....	1	(b) Literature.....	2
3 Agriculture, manual training, or home economics.....	5	(c) Composition.....	1
4 Science—Botany.....	5	3 Agriculture, manual training, or home economics.....	5
5 Exercises—(a) Drawing.....	2	4 Science—Zoology.....	5
(b) Vocal music.....	2	5 Exercises—(a) Drawing.....	2
(c) Writing.....	1	(b) Vocal music.....	2
6 Spelling.....	5	(c) Writing.....	1
		6 Spelling.....	5

SECOND YEAR.

1 Mathematics—High school algebra.....	5	1 Mathematics—High school algebra.....	5
2 English—(a) Rhetoric.....	2	2 English—(a) Rhetoric.....	2
(b) Literature.....	2	(b) Literature.....	2
(c) Composition.....	1	(c) Composition.....	1
3 Agriculture, manual training, or home economics.....	5	3 Agriculture, manual training, or home economics.....	5
4 Science—Physiology.....	5	4 Science—Physical geography.....	5
5 Exercises—(a) Drawing.....	2	5 Exercises—(a) Drawing.....	2
(b) Vocal music.....	2	(b) Vocal music.....	2
(c) Writing.....	1	(c) Writing.....	1
6 Spelling.....	5	6 Spelling.....	5

THIRD YEAR.

1 Mathematics—Plane geometry.....	5	1 Mathematics—Plane geometry.....	5
2 English—(a) Rhetoric.....	2	2 English—(a) Rhetoric.....	2
(b) Literature.....	2	(b) Literature.....	2
(c) Composition.....	1	(c) Composition.....	1
3 General history or German.....	5	3 General history or German.....	5
4 Science—Physics.....	5	4 Science—(a) Physics of agriculture.....	3
5 Exercises—(a) Drawing.....	3	(b) State geology.....	2
(b) Vocal music.....	2	5 Exercises—(a) Drawing.....	3
6 Spelling.....	5	(b) Vocal music.....	2
		6 Spelling.....	5

FOURTH YEAR.

1 Mathematics—Solid geometry.....	5	1 Mathematics—Plane trigonometry and surveying.....	5
2 English—(a) Literature.....	4	2 English—(a) Literature.....	4
(b) Composition.....	1	(b) Composition.....	1
3 American history or German.....	5	3 American history and civil government or German.....	5
4 Science—Chemistry.....	5	4 Science—Chemistry of agriculture.....	5
5 Exercises—(a) Drawing.....	3	5 Exercises—(a) Drawing.....	3
(b) Vocal music.....	2	(b) Vocal music.....	2
6 Spelling.....	5	6 Spelling.....	5

During the first year the boys have agriculture three times a week and manual training two double periods a week. The girls have the same work in agriculture, and home economics in place of the manual training. The first-year agricultural work is somewhat general in its character, and is made of interest to both boys and girls. The girls find ample opportunities to make use of their knowledge of agriculture, as practically all of them become farmers' wives. Many of them teach in country schools and find many opportunities to use their agriculture in their teaching work. One of the greatest values of these courses for girls, according to the principal of the school,

will be the inspiration and stimulus for agricultural pursuits given to boys and girls of the next generation by educated mothers who understand the principles of agriculture and who have real sympathy for country life. An outline of the agricultural courses of the first and second years is as follows.

COURSE IN AGRICULTURE.

FIRST YEAR.

Elementary principles of chemistry and physics. Demonstration of oxygen, hydrogen, nitrogen, carbon dioxide, water, and the common mineral elements.

Soils: Origin, kinds and depths, types, chemical composition, soil moisture, drainage and ventilation, tillage, implements for soil preparation.

The Plant:

Classification—

Cereals: Corn, wheat, oats, and others.

Forage crops: Millets, clovers, alfalfa, cowpeas, soy beans, vetches, and others.

Root crops.

Fiber crops, both plant and animal: Cotton and wool.

Rotation of crops. Fertilizers. Propagation of plants. Plant improvement.

Friends and enemies of plants:

Plant forms—fungi and weeds.

Animal forms—insects, birds, and animals.

Gardening and fruit growing.

Forestry, landscape gardening, and civic improvements.

Roads and road building.

Farm management:

Planning houses and barns.

Planning the arrangement of the fields of a farm for rotation of crops.

Fuel and light.

Feeds and feeding; computing rations.

Animal husbandry:

Stock feeding.

General principles of breeding.

Domestic animals—types and values.

Horses and mules, cattle, hogs, sheep, poultry, bees.

Country life conveniences.

SECOND YEAR.

Improvement of plants and animals.

Variation, heredity, and environment, selection.

Improvement of corn studied in detail: Selection of seed.

Corn tester and the ear-row test.

Propagation of plants studied more in detail than in first year.

Plant food, soil studies: Chemical and physical composition.

Soil water, soil air, organic matter, bacteria.

Maintaining the fertility of the soil; manure, rotation of crops, lime, cover crops, tillage.

Study of the management of the corn, wheat, oats, cotton, and other crops.

Study of the farm wood lot and its management.

Study of orchards and fruit growing.

Enemies of farm crops and remedial measures: Spraying mixtures.

Weeds, fungus, and bacterial diseases.

Insects.

Systems of cropping. Feeds and feeding.

Study of the horse, cattle, sheep, swine, poultry.

Farm management. The farm home and community.

The work of the first year is, as stated above, of a general nature and endeavors to give the pupil a broad view of agriculture in all of its relations, and thus to arouse his interest in some particular line of agriculture and sympathy with country conditions. An attempt is made to win his respect for farm life by getting him to see in their true significance the agricultural problems which the farmer has to solve.

The work of the second year, while covering much of the ground gone over in the first year, is a more detailed study of the various subjects outlined. In this it is the purpose of the instruction to get at the underlying principles. It is intended to equip the pupil with what the farmer will need to know to make his farm life profitable and satisfying.

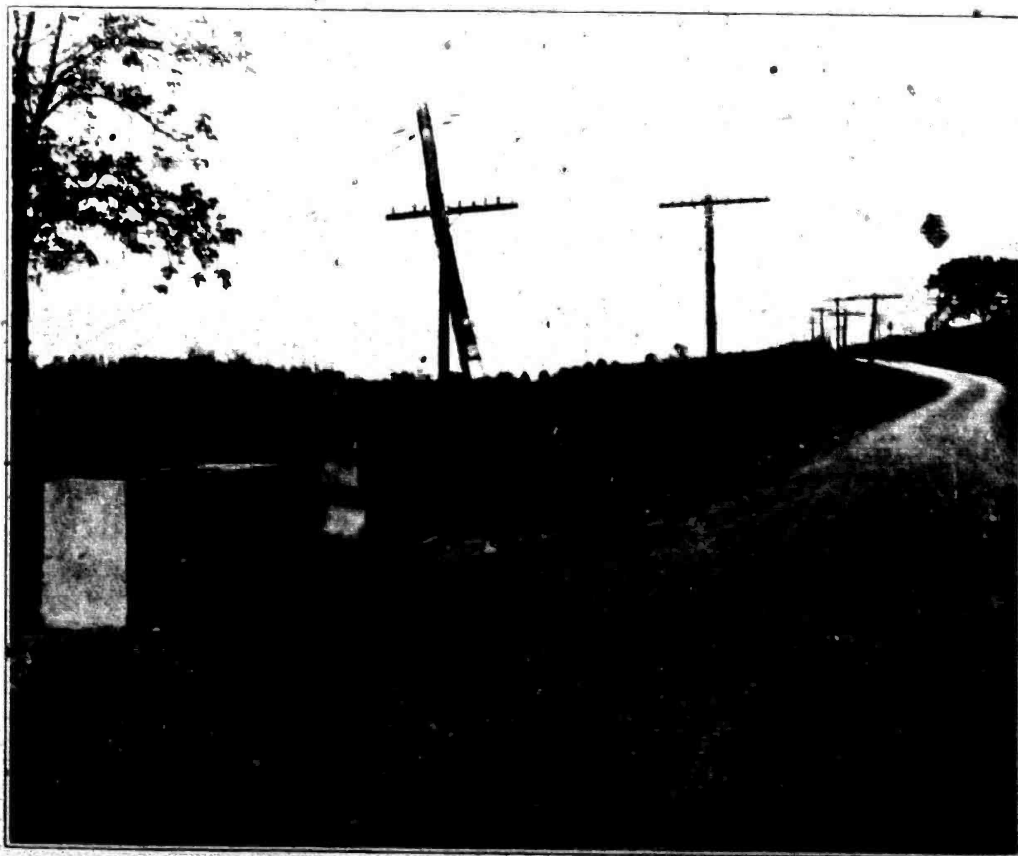
In the third year agricultural students take a half year in elementary physics, followed by a half year in agricultural physics. In this is included only the most practical phases of the subject, such as the movements of water in the soil and farm drainage, farm machinery, and farm structures, including buildings, bridges, and roads. In the fourth year general chemistry is studied the first half year, agricultural chemistry the second half. This also is made as practical as possible. Pupils study the chemistry of the air, of water, milk, animal and plant foods, soils, and fertilizers.

Textbooks in agriculture are used the first two years—Wilkinson's Practical agriculture in the first year, and Warren's Elements of agriculture in the second year. The textbook for the second year's work is supplemented by agricultural bulletins in the third and fourth years. In addition to the general texts in physics and chemistry, no special textbooks are used. In teaching agricultural physics and chemistry, several reference books are used, also much use is made of a collection in the school library of 4,000 bulletins from experiment stations and from the United States Department of Agriculture.

Mention is made of this collection of bulletins in another place in this article under the section on the community service of the school. The bulletins are used by other classes than those in agriculture. The authorities of the school believe that much agriculture can be taught through other subjects; also they believe that all the regular



A. WATER POWER WHICH DRIVES THE DOUBLE ACTING RAM.



B. THE FARRAGUT WATERING PLACE.



1. GROUP OF FARMERS AT THE MEETING TO DISCUSS CANNING FACTORIES AND CORN GROWING.



2. SCENE FROM THE PLAY "THE DUST OF THE EARTH," GIVEN AT COMMENCEMENT TIME, MAY, 1912.

academic subjects may be given a "country-life twist." It is the intention of the school to have the teaching of all subjects in the course of study "surrounded by an agricultural halo." For instance, it is the opinion of the school that high-school agriculture is full of excellent material for written work in English. To make the best use of this material, the English teacher must have an agricultural point of view. The boys and girls in the Farragut School have in the library just mentioned and in the teacher, who has special charge of the bulletins of the library (the teacher of English), a ready source of information for subject matter, not only for their agricultural courses but also for their English. Of course, the English work is not confined to reading and composition dealing wholly with agricultural and rural life. Farm boys and girls need an acquaintance with other literature as much as other boys and girls. However, agriculture and country-life subjects are used as the basis for a large part of the reading and composition work.

In the study of agriculture much use is made of the laboratory. Much more use, however, is made of the school demonstration plats. Here the students see the principles of increasing the soil fertility worked out. They assist in harvesting the crops and in keeping the records of the yield from those under different treatment. Many of the boys have also home gardens cultivated in accordance with the instruction they are receiving in the school. Many boys cultivate an acre of corn and belong to the school corn club. The president of this local club is also president of the county boys' corn club.

The manual training and carpenter work is arranged as follows: The student learns first the names and the uses of the tools found on his bench and of the others supplied for general use. Next he performs a few simple exercises, from which he learns how to saw a square block, make a half lap, a mortise and tenon, and to select and square up rough stock. Then he constructs some useful article of furniture first, with the help of a teacher, working out his own design. He then selects the material from the stock on hand and finishes the piece according to his own ideas. In the second year much time is devoted to mechanical and simple architectural drawing. This is followed by the work in farm carpentry; that is, making various structures used on the farm from working drawings prepared by the student.

In the home-economics course the girls study the composition and preparation of foods during the first year. The course is intended to teach them how to make the best use of various articles of food found on the farms of east Tennessee. The second year is devoted to sewing. The work is practical, and each girl is taught how to make her own clothes.

The practice work in cooking requires two periods a week of 90 minutes each for the full year. An outline of the course follows:

COURSE IN COOKING.

Study and care of kitchen equipment.

Weighing, measuring, cooking temperature, etc.

Principles and practices of fire making.

General cooking, including the following in the order given:

Beverages, sauces, cereals, potatoes, breads, batters, meats (including a study of various cuts and the value, uses, and preparation of each for the table), eggs, milk and cheese dishes, puddings and desserts, pastry, vegetables, salads.

Canning and preserving fruits, vegetables, etc.

Invalid cooking.

Preparation of food for babies.

Serving a meal.

COMMUNITY SERVICE.

The Farragut School is attempting to be more to the community than the ordinary school which confines its attention to instructing the boys and girls who come to it as pupils. It is attempting to be an institution of wider use, and to be of direct value to every man, woman, and child in the community. The following are some of the ways in which the school is serving the community:

On the last Friday night before each full moon there has been held at the schoolhouse, for the past five years, meetings called "moonlight socials." These are community gatherings to which all are welcome. The program varies from meeting to meeting. There is always a liberal allowance of music and usually a talk on a subject of general interest pertaining to some phase of farm and home life. Sometimes the talks are given by outside persons, from the State agricultural college or elsewhere. More often, however, there is a general discussion of a selected subject, led by a few members of the community selected before the meeting. If the subject to be discussed deals with technical phases of agriculture in which they are not interested, the women will meet in another room and discuss some problem of house-keeping. The discussions are made as practical as possible. After the regular program is over the evening is given to general sociability, playing games, and singing familiar songs. Usually some sort of lunch is served. The domestic-science room has facilities which make the serving of a lunch very easy. The meetings are well attended and have become a very important part of the community life.

Other evening meetings are held in the schoolhouse on many special occasions. If the people of the community desire to get together for any purpose, the schoolhouse is always designated as the place of meeting.

The biggest meeting of the year, however, is on Commencement Day. The program lasts all day. In the forenoon the graduating exercises take place, with essays or short talks by members of the graduating class. These essays and talks are usually upon subjects pertaining to farm and country life, and are therefore of more interest to the audience than the ordinary high-school graduation essay or oration. At this forenoon meeting the graduates receive their diplomas. At noon a basket dinner is served on the grounds under the large shade trees. The food contributed by each family is put in a common lot and served as a community dinner. The domestic-science room is utilized to make the lunch more complete. This plan helps make the lunch hour a real social hour. After dinner the visitors inspect the plot demonstrations in rotation of crops, and the progress of the various crops under the different treatments is noted. The features of the demonstration are explained by the principal of the school. At 2 o'clock the people assemble in the school, and there is a Commencement address, usually by some prominent outside speaker. Following this is a baseball game between the high-school team and either a team from some other school or a selected team from among the farmers of the community. In the evening a drama is presented by the students of the school. This part of the program creates great interest and is always well attended.

Another service of the school is in furnishing agricultural reading for the farmers and their wives in the community. The school library contains about 200 books and a large number of Government reports. It also contains about 4,000 bulletins from various experiment stations in the United States. There is an abundance of valuable reading in these bulletins which is not ordinarily available for farmers, because they have no way of determining where the most valuable material is to be found. This school has been very successful in its attempts to overcome this difficulty. One teacher of the school examines all bulletins received. He notes particularly what in the bulletins is of value to the farmers and housekeepers in the territory served by the school. He therefore not only has information on the particular subject discussed by the bulletins, but also is able to put into the hands of the people of his community the material which will be of most value to them. All the bulletins and books of the library are constantly in circulation in the community and are available for young and old people alike. The school building is open on Wednesdays and Saturdays throughout the summer vacation for those who care to visit the library to consult the books and bulletins in the library or to get books, reports, bulletins, or periodicals for home reading.

During the vacations the school playgrounds are used freely by people in the district. They are, in fact, community playgrounds, on which the boys gather for baseball and other games whenever their duties permit. The tennis courts and basket-ball courts are in considerable demand. The school and its property are regarded by the individuals of the community as belonging to them, and they are welcome at all times to make any use of them which does not work injury to the school. On days during the summer vacation on which the school library is open the shower baths are also open and many visitors use them.

The school grounds and demonstration plats are open to inspection at all times, and farmers driving by frequently stop to examine the crops. Many of them visit the plats at regular periods and study carefully their progress.

Another important community service comes through the outside activities of the principal of the school. He has become an expert adviser in agriculture to all the farmers of the community. He is employed throughout the year, and a horse is furnished him. When school is not in session he spends much of his time in driving about the community, visiting the farmers on their farms, and getting in touch with local agricultural conditions and problems. This enables him to know well the agricultural conditions of the community, to adapt the work of the school to the needs of the community as he finds them, to bring to each farmer expert advice for his own particular needs, and to give to all information in regard to the best things done by any. It also enables him to keep in touch with the boys' corn-club work and other agricultural work, and to see that in their practical work on the farm they apply the principles learned in school.

All the high-school teachers, except the music teacher, are college graduates. All have had special training for the subjects they are teaching. The principal is not only a graduate of the State Agricultural College at Cornell University, but also has had several years' experience in practical farming and in teaching in different sorts of institutions, including a public school, a State normal school, a private college, and a summer school for public-school teachers.

The salaries paid in 1912-13 were as follows: The principal received \$1,500, with a house, 1 acre of garden, and the use of the chicken house and the school horses. This is equivalent to a cash salary of at least \$2,000. He receives also \$300 for his work as supervisor of the agricultural courses in the other high schools of the county. The other teachers receive \$975, \$720, and \$720, respectively; the janitor's salary is \$360.

THE RESULTS OF THE SCHOOL.

During the nine years of its existence this school has sent an unusually large number of boys and girls to college, given a good practical education to many more who are now successful farmers and housekeepers, and has become a very vital factor in all community improvement. The people of the county, who at first looked upon this school as a doubtful and unwise experiment, have, after watching its work, become convinced of its value, and have demanded similar schools in other parts of the county. In response to this demand the county court of Knox County has issued bonds and levied taxes for the erection of buildings and the maintenance of three other high schools of the Farragut type, and all these schools are now in operation.

APPENDIX.

INDUSTRIAL EQUIPMENT OF THE FARRAGUT HIGH SCHOOL.¹

For agriculture.

1 one-horse wagon.
 1 one-horse plow given to school.
 1 smoothing harrow.
 1 disk harrow.
 1 superior grain drill.
 1 superior corn planter.
 1 plank harrow made by the school.
 1 scythe.
 1 grain cradle.
 4 hoes.
 1 single wagon harness.
 2 sets plow harness.
 1 brood mare and 4 foals.
 1 chicken house.
 20 Plymouth Rock hens.
 1 Babcock milk-test apparatus.
 2 sets of pruning shears.
 6 grafting knives.
 1 bucket spray pump.
 4 seed testers.
 4 sets soil tubes.

Laboratory apparatus.

Used by the classes in agriculture, biology, physics, and chemistry, valued at \$700.

For carpentry.

11 benches with 2 vices each.
 11 one-inch chisels.
 11 half-inch chisels.
 11 quarter-inch chisels.
 11 two-foot rules.
 11 tenon saws.
 11 jack planes.
 11 gauges.
 11 try-squares.

11 bench hooks.
 11 mallets.
 11 brushes.
 1 rip-saw.
 1 crosscut saw.
 1 framing square.
 1 jointer plane.
 3 braces and set of bits.
 2 sets of wood files from one-quarter to 1 1/2 inches in diameter.
 1 pair steel compasses.
 3 pairs pencil compasses.
 1 pair callipers.
 4 wood scrapers.
 1 drawshave.
 6 spokeshavers.
 1 extension bit.
 6 gauges one-half inch to 1 inch.
 4 block planes.
 2 nail sets.
 6 hand screws.
 1 grindstone.
 2 oilstones.
 1 set of files for saws.
 1 handsaw set.
 2 screw drivers.
 2 hammers.
 1 gimlet bit.
 4 smoothing planes.
 2 keyhole or turning saws.
 1 set carving tools.
 1 combination plane.
 1 saw holder for sharpening.

*For sewing.*²

1 sewing machine.
 1 cutting table.
 6 pairs of scissors.

¹ Prepared by the principal of the school.

² The total cost of the sewing and cooking equipment was about \$400.

For cooking.¹

12 desks and equipment, including for each:

Case knife.
Spatula.
Paring knife.
Fork.
2 teaspoons.
1 tablespoon.
1 wooden spoon.
1 measuring cup.
1 scrubbing brush.
Small platter.
Small skillet.
Small saucepan.
Small tin plate.
Small mixing bowl.
Dover egg beater.
Daisy egg beater.
Linen towels.
Desk stool.
1 coal or wood range.
1 fireless cooker.
1 steam cooker.
1 bread mixer.
1 supply table.
2 towel racks.
2 sinks.

1 stationary basin.
12 dish pans.
3 soap shakers.
1 tea kettle.
1 coffee pot.
1 tea pot.
1 sugar can.
1 bread box.
1 salt box.
2 marble molding slabs.
6 rolling-pins.
2 large skillets.
1 waffle iron.
2 muffin pans.
3 large granite saucepans.
1 large double boiler.
12 small double boilers.
12 pie pans.
12 large mixing bowls.
6 porcelain pitchers.
2 lemon squeezers.
1 can opener.
3 graters.
6 sifters.
12 crockery pop-over cups.
12 tumblers.
12 cups and saucers.
12 china plates.

¹ The total cost of the sewing and cooking equipment was about \$400.